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ATTN: Mr. John Geroch
California Regional Water Quality Control Board
Los Angeles Region (RWQCB)
320 West 4th Street, Suite 200
Los Angeles, California 90013

ENVIRONMENTAL

Date:
18 May 2004

Subject:
Water Test Plan
Waste Discharge Requirements Order Number R4-2002-0030 (Series 007)
Compliance File Number CI-95-036, SLIC 0410
Project Site: Former Boeing C-6 Site (Building 2 Area), Los Angeles, California

Contact:
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Project Number:
CA000594.0003.00005

Dear Mr. Geroch:

On behalf of Boeing Realty Corporation (BRC), ARCADIS is submitting this Water Test Plan to evaluate the bio system at the former Boeing C-6 Site, Los Angeles, California. The test will be conducted using water and will be conducted pursuant to the monitoring and reporting program presented in the Waste Discharge Requirements (WDR) Order Number R4-2002-0030 (Series 007).

The purpose of this test is to provide the following information:

1. Assess and catalog the as-built operating condition of the amendment point system and identify any points that have the potential to cause future fluid losses;

2. Develop injection procedures for subsequent injections that eliminate the potential for future fluid spillage from the amendment point system;

3. Obtain process parameters (e.g., flow rates, pressures, etc.) that will be used in subsequent molasses injection plans and implementation events; and

4. Develop contingency plans to address amendment system pressure/flow issues.

Preliminary operational performance data was collected from each well during amendment system molasses flushing that was conducted between March 1 and March 3, 2004. From those observations, it was determined that 86% of the amendment points can be operated in a siphon mode, eliminating the potential for above-grade fluid spillage. The 14% of the wells that did not siphon at useable rates

may require active pumping to sustain a useful amendment injection flow rate, if additional development procedures do not result in sufficient siphoning flows.

The water injection test will be divided into three major sections: testing of wells that stopped flowing during the molasses flushing event, testing of wells that exhibited siphoning during the molasses flushing, and wells that have not been injected.

Testing "No-Flow" and Low-Flow Wells:

During the molasses-flushing event, the amendment points used during the initial injection event were flushed with water to remove any residual molasses from the piping network. Each amendment point was flushed with water at an initial maximum injection manifold pressure of 13 psig. Two amendment points had their applied pressure increased to 14 and 16 psig. Since no leakage was observed during the molasses flushing event, the assumption will be made that 13 psig is a "safe" injection pressure for all of the amendment points to be tested. Fifteen of the 106 amendment points tested exhibited either zero flow or very low flow rates during the flushing event. Low flow is defined where the flow rate is generally less than 1 gpm. The following is a list of the amendment points that will be tested during this phase of the water injection test:

Vault 1

IRZB-1	**IRZB-2**	**IRZB-5**	**IRZB-8**	**IRZB-9**
IRZB-10		**IRZB-20**		**IRZB-27-A**

Vault 2

IRZB-45-B	**IRZB-47-A**	**IRZB-49-A**	**IRZB-50-A**	**IRZB-51-A**
		IRZB-54-A		

Vault 3

IRZB-69

The following summarizes the procedure that will be followed for the above wells:

1. Initial pressure / vacuum readings will be recorded for each amendment point;
2. Water will initially be injected at a wellhead pressure not to exceed 13 psig (this pressure corresponds to the molasses flush pressure, which is equivalent to 30 feet of static head);
3. If a zero-flow or low-flow condition exists, the wellhead pressure will be slowly increased to a maximum pressure of 22 psig (approximately 50 feet of static head);
4. If a zero-flow or low-flow condition persists at an applied pressure of 22 psig, the amendment point may be damaged or unusable, and may require being taken out of service;
5. Pressure and flow rate data will be recorded for each amendment point at regular intervals of no more than five minutes for a period of at least two hours or until the final injection volume is reached, whichever occurs first;
6. Flow rates and pressures will be carefully monitored during the injection test to watch for sudden changes in flow rate or pressure. A sudden change from a low-flow rate, high-pressure condition, to a high-flow rate, low-pressure condition could indicate that a line break or well seal failure has just occurred. If sudden performance changes are observed, the points will be re-checked for siphoning capacity; and
7. Pressure readings will be recorded at adjacent monitoring points during the water test. Pressures will be measured from the adjacent amendment points in the north, south, east, and west directions. For example, if point IRZ-10 is being tested, then points IRZ-3, IRZ-9, IRZ-11, and IRZ-16 will be measured. The frequency of measurement will be field dependent and base on the flow rate of the amendment point; however, the anticipated frequency could range from every 5 to 15 minutes. Pressure readings from the adjacent points will provide data to assess if pressure influence is detected at adjacent areas and assess potential preferential flow paths.

Testing Siphoning Wells:

A majority (86%) of the amendment points siphoned after an initial volume of water (between approximately 7 and 13 gallons) was injected during the molasses-flushing event. The purpose of this test is to determine whether a suitable injection flow rate can be sustained by the siphoning process. The following amendment points were

selected from among the siphoning wells to be tested during this phase of the water injection test:

Vault 1

Test 1		Test 2	
IRZB-4	**IRZB-6**	**IRZB-3**	**IRZB-7**
IRZB-12	**IRZB-14**	**IRZB-11**	**IRZB-13**

Vault 2

Test 3		Test 4	
IRZB-64	**IRZB-66**	**IRZB-65**	**IRZB-67**
IRZB-71	**IRZB-73**	**IRZB-70**	**IRZB-72**

The above amendment points will be tested in four separate test phases. The following procedures will be followed during the water injection test:

1. Initial pressure / vacuum readings will be recorded for each amendment point;
2. Water will initially be injected at a wellhead pressure not to exceed 13 psig until the water starts to siphon after the initial 7 to 13 gallons of injection;
3. If the amendment points do not start to siphon after 15 gallons of injection or the injection flow rate drops to a very-low or zero-flow rate, the wellhead pressure will be slowly increased to a pressure not to exceed 22 psig;
4. If the amendment point does not accept flow at an applied wellhead pressure of 22 psig, the amendment point may be damaged or unusable, and may require being taken out of service;
5. Pressure and flow rate data will be recorded for each amendment point at regular intervals of no more than five minutes;
6. Flow rates and pressures will be carefully monitored during the injection test to watch for sudden changes in flow rate or pressure. A sudden change from a low-flow rate, high pressure condition, to a high-flow rate, low pressure condition could indicate that a well seal has just failed;

7. The water injection test will be run until the design volume of water has been injected or the well has been deemed damaged or unusable; and

8. Pressure readings will be recorded at adjacent monitoring points during the water test. Pressures will be measured from the adjacent amendment points in the north, south, east, and west directions.

Testing Non-Injected Wells:

Thirty-two of the amendment points were not injected into on February 23 and 24, 2004. These points will be tested in the third phase of the water injection test. The purpose of this test is to determine the injection flow rate that can be sustained in these points. The following amendment points will be tested:

Vault 1

IRZB-23A	**IRZB-23B**	**IRZB-26A**	**IRZB-26B**	**IRZB-27B**
IRZB-30A	**IRZB-30B**	**IRZB-31A**	**IRZB-31B**	**IRZB-32**
IRZB-33A	**IRZB-33B**	**IRZB-34A**	**IRZB-34B**	**IRZB-35**
IRZB-36	**IRZB-37A**	**IRZB-37B**	**IRZB-38A**	**IRZB-38B**
IRZB-39	**IRZB-40**	**IRZB-42A**	**IRZB-42B**	

Vault 2

IRZB-46B	**IRZB-55A**

Vault 3

IRZB-77	**IRZB-78**	**IRZB-81**	**IRZB-83**	**IRZB-95**

The above amendment points will initially be tested following the procedures established above for the siphoning wells. If the wells do not siphon during water

testing, they will be tested following the "No-Flow" and Low-Flow well testing procedures. During testing of points IRZB37A/B, IRZB38A/B, IRZB39, and IRZ42A/B, groundwater pressures will be recorded at nearby monitoring wells using pressure transducers. The transducers will be installed in monitoring wells IRZBMW001, IRZBMW002, and IRZBMW003. In addition, pressure transducers will be installed in monitoring wells IRZMW004 and IRZMW005 during testing of points IRZB81 and IRZB95, respectively.

Visual inspections inside and outside of the building will be conducted during all phases of the water injection test.

If you have any questions, or require any additional information, please contact me at (714) 278-0992, extension 3047.

Sincerely,

ARCADIS G&M, Inc.

James K. Nguyen

James K. Nguyen, P. E.
Project Manager

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Project File